

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A processing system capable of electronically generating reverberation signals having a decay rate, the system comprising:

(A) a notchpass filter for receiving a signal and generating an output signal, comprising:

- a first module for delaying the signal by a first delay value;
- a first multiplier for scaling the signal according to a first gain; and
- a second multiplier for scaling the signal according to a second gain,

where the first module and first and second multipliers are operatively coupled to form a first signal processing circuit path,

the notchpass filter having a comb filter-like amplitude and delay output response characterized by a plurality of delay maximum at certain frequencies and a plurality of gain minimum at said certain frequencies;

(B) an energy transmission network for receiving the output signal from the notchpass filter, the energy transmitting network comprising:

- a second module for delaying the signal by a second delay value; and
- a third multiplier for scaling the signal according to a third gain,

where the second module and third multipliers are operatively coupled to form a second signal processing circuit path that both delays and scales the received signal;

the values of the first and second gain have a defined relationship with the first and second delay values and the third gain; and

the combined notchpass filter and energy transmitting network have an amplitude output response characterized by a plurality of gain minimum at the

same frequencies ~~[[and]]~~ as a plurality of delay maximum ~~at the same frequencies~~ so that the decay rate is substantially identical at all frequencies.

2. (Currently amended) A method for electronically generating reverberation signals having a decay rate, the method comprising:

(A) providing a notchpass filter in combination with an energy transmission network where the notchpass filter comprises:

- a first module for delaying the signal by a first delay value;
- a first multiplier for scaling the signal according to a first gain; and
- a second multiplier for scaling the signal according to a second gain;

the first module and first and second multipliers operatively coupled to form an signal processing circuit path,

the notchpass filter having a comb filter-like amplitude and delay output response characterized by a plurality of peak delay maximum at certain frequencies and decreased gain minimum at the same certain frequencies;

the energy transmitting network comprising:

- a second module for delaying the signal by a second delay value;
- a third multiplier for scaling the signal according to a third gain; and

the second module and third multipliers operatively coupled to form ~~[[an]]~~ a signal processing circuit path that both delays and scales the received signal;

(B) calculating modified first and second gain value from the first and second delay values and the first, second and third gain; and

(C) applying the modified first and second gain value to the first and second multipliers, respectively, so that, in response to modified first and second gain, the combined notchpass filter and energy storing network has an amplitude output response characterized by a plurality of gain minimum at the same certain frequencies and a plurality of delay maximum at the same certain frequencies so that the decay rate is substantially identical at all frequencies.

3. - 12. (Withdrawn)

13. (Original) A signal processing system comprising:
a first delay module for creating an output signal;
a first multiplier for scaling the output signal with a first gain;
a second multiplier for scaling the output signal, modified by the first gain, with a second gain; and

a filter formed from the first delay module, the first multiplier, and the second multiplier for creating a comb filter-like amplitude and delay output response characterized by a plurality of peak delay maximum at certain frequencies and decreased gain minimum at the same certain frequencies.

14. (Original) The signal processing system of claim 13 in serial combination with an energy transmission network for processing a signal, the energy transmission network comprising:

a second delay module capable of creating a second output; and
a third multiplier for scaling the second output by a third gain, where the second delay module and the third multiplier are operatively coupled to form a third output signal.

15. (Original) The processing system of claim 14 wherein a portion of the second output signal is processed and filtered.

16. (Original) A plurality of the processing systems of claim 15 coupled in parallel with a source signal.

17. (Original) A plurality of the processing systems of claim 15 coupled in series with a source signal.

18. (Original) The processing system of claim 14 in combination with one or more filters with frequency responses having one of increased and decreased gain at certain frequencies.

19. (Original) The processing system of claim 14 wherein a first filter is coupled in series with the second delay module and a second filter is combined with one of the first and second multipliers.

20. (Currently amended) The processing system of claim 13 further comprising:
a second delay module, in series with the first delay module, for delaying the signal by ~~[[the]]~~ a first delay value;
the first multiplier configured in parallel with the first delay module in a feedback circuit path; and
the second multiplier configured in parallel with the second delay module in a feedforward circuit path.

21. - 41. (Withdrawn)

42. (Currently amended) A computer usable signal bearing medium for processing a signal comprising:

logic configured to provide a notchpass filter comprising:

logic configured for a first delay module for delaying the signal by a first delay value;

logic configured for a first multiplier for scaling the signal according to a first gain;

logic configured for a second multiplier for scaling the signal according to a second gain; and

logic configured for the first delay module and first and second multipliers operatively coupled to form a signal processing circuit path; and

logic configured for supplying signals to first module, and first and second multipliers to process the signal so that the notchpass filter has a comb filter-like amplitude and delay output response characterized by a plurality of peak delay maximum at certain frequencies and decreased gain minimum at the same certain frequencies.

43. (Previously presented) The signal-bearing medium of claim 42 further comprising:

logic configured for combining the notchpass filter with an energy transmitting network comprising:

logic configured for a second module for delaying the signal by a second delay value; and

logic configured for a third multiplier for scaling the signal according to a third gain; and

logic configured for the second delay module and third multipliers operatively coupled to form a signal processing circuit path that both delays and scales the signal; and

logic configured for supplying signals to second module and third multiplier to process the signal so that the combined notchpass filter and energy transmitting network have a comb filter-like amplitude and delay output response characterized by a plurality of peak delay maximum at certain frequencies and decreased gain minimum at the same certain frequencies.

44. - 52. (Withdrawn)

53. (Currently Amended) A computer program product for digitally filtering data representing an audio signal and generating data representing processed audio signal data, the computer program product comprising a computer usable medium having embodied therein computer readable program code comprising:

- i) first delay program code for delaying the audio signal data by a first delay value;
- ii) first multiplier program code for scaling the audio signal data according to a first gain coefficient;
- iii) second multiplier program code for scaling the audio signal data according to a second gain coefficient;

the first delay program code, and first multiplier program code and second multiplier program code operatively coupled to form a first audio signal processing path, the digital filter having a comb filter-like amplitude and delay output response characterized by a plurality of delay maximum and a plurality of gain minimum at identical frequencies.

54. (Original) The computer program product of claim 53 further comprising:

- iv) second delay program code for delaying the audio signal data by a second delay value,
- v) third multiplier program code for scaling the audio signal data according to a third gain coefficient,

the second delay program code and third multiplier program code operatively coupled to form a second audio signal processing path that both delays and scales the audio signal data.

55. - 56. (Withdrawn)

57. (Currently amended) A computer program product ~~data signal embodied in carrier wave~~ useful for digitally processing data representing an audio signal and generating data representing processed audio signal data, the computer program product comprising a computer useable medium having embodied therein program code ~~data signal~~ comprising:

- i) first delay program code for delaying the audio signal data by a first delay value;

- ii) first multiplier program code for scaling the audio signal data according to a first gain coefficient;
- iii) second multiplier program code for scaling the audio signal data according to a second gain coefficient;

the first delay program code, and first multiplier program code and second multiplier program code operatively coupled to form a first audio signal processing path, the digital filter having a comb filter-like amplitude and delay output response characterized by a plurality of delay maximum and a plurality of gain minimum at identical frequencies.

58. (Currently amended) The computer program product data-signal of claim 57 further comprising:

- iv) second delay program code for delaying the audio signal data by a second delay value,
- v) third multiplier program code for scaling the audio signal data according to a third gain coefficient,

the second delay program code and third multiplier program code operatively coupled to form a second audio signal processing path that both delays and scales the audio signal data.

59. (Currently amended) The computer program product data-signal of claim 57 further comprising:

program code for resupplying a portion of processed audio signal data to one of the first audio signal processing path and second audio signal processing paths.